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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,137	02/16/2005	Dirk Herbert Teeuw	PHIL020765US1	1790
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EXAMINER				
PRONT, JASON D				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/525,137

Applicant(s)

TEEUW ET AL.

Examiner

Jason Daniel Prone

Art Unit

3724

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-3, 5-14, and 16-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. With regards to claims 1, 8, and 19, the phrase "wherein the coating comprises an ion implanted layer of CR that is ion implanted into the metal substrate" is new matter. Page 5 line 24 discloses the substrate is implanted with CR⁺ ions. The phrase is new matter because it discloses that the layer is ion implanted and not the CR⁺ ions of the layer are implanted. The specification does not disclose the exact make-up of the layer and the open language of claims 1, 8, and 19 allows for the interpretation that more than just chromium can be present in the layer. For example if the layer had an additional material mixed with the chromium, the ions of that combination could be ion implanted which is what is not supported by the specification. Changing "wherein the coating comprises an ion implanted layer of CR that is ion implanted into the metal substrate" to "wherein the coating comprises a layer of CR with CR⁺ ions and the CR⁺ ions are ion implanted into the metal substrate" would overcome the rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 6, 7, 9-11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri (3,835,537) in view of Wong et al. (5,776,615) and Klementich (5,360,239).

With respect to claims 1, 2, 19, and 20, Sastri discloses a cutting member (razor blade 20) having a metal substrate which is provided with a cutting edge (tapered portion 30 shown in figure 2), at least a portion of the substrate including the cutting edge being provided with a coating (outer chromium coating 36, see column 5 lines 46-49), the coating is layered on the substrate in multiple coats as shown in figure 4. Further, Sastri discloses the coating comprising an implanted layer of Cr (36) that is implanted into the metal substrate. Examiner notes that the word "implant" merely means to fix firmly to (see dictionary.com). The blade of Sastri clearly has Cr layers which are fixed to the blade body. Sastri does not disclose the coating comprising carbon, characterized in that the coating comprises a plurality of stacked pairs of layers, each pair comprising a first layer mainly comprising carbon and a second layer mainly comprising a metal, and each pair having a thickness between 1 and 10 nm. Examiner notes that Sastri does disclose the coating comprising an implanted layer of Cr that is implanted into the metal substrate.

Wong et al. discloses a process for making superhard composite materials out of carbon and metal alternating layers for use in cutting devices. "The composite material may comprise a plurality of alternating layers comprising the carbon nitrogen compound each deposited on a respective layer of metal or metal compound to form a multi-layered, superlattice coating wherein each layer is ion bombardment densified during deposition and each layer has a thickness in the range of about 0.5 nm to about 100 nm (nanometer). Such a coating exhibits a hardness substantially exceeding (e.g. 2 times) the hardness of each individual layer in homogenous form" (column 4 lines 4-12).

Wong et al. also discloses that chromium is an acceptable metal to use as it falls within group VI of the periodic table of elements (see column 3 line 60). In the setup disclosed by Wong et al, the metal/carbon pair of a layer has a thickness from 1-200nm, which overlaps sufficiently with the range 1-10nm. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to replace the solely chromium layers of Sastri with an alternating carbon nitrogen and chromium layered pair setup in view of the teachings of Wong et al. in order to create a harder cutting surface. Further, with respect to claim 2, examiner notes the second layer in this setup is a Cr layer.

Examiner notes that the first layer, in the above modified setup includes carbon (as CN_x as taught by Wong et al.). Although the entire layer is not in the elemental form of carbon, carbon in the elemental form exists just by the nature of the element carbon being present. Further, because the claim begins with the phrase "comprising," the layer is not limited to carbon and carbon alone.

With respect to claim 3, Wong et al. discloses using the metal layer having a thickness ranging from 0.5 to 100 nm. 1.6 to 2.0 nm is fully encompassed by this range.

With respect to claims 6 and 7, Sastri in view of Wong et al. discloses that the total thickness of material added to the substrate by layering has a thickness of at least 400 Angstroms (40 nm; abstract of Sastri). No specific size of the total layer is given. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide enough layered pairs so that the thickness of the coating was in the range of 80 - 120 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claim 9, the modified apparatus of Sastri discloses the coating having a hardness approximately four times the hardness of Cr. Examiner notes that hardness is measured in many different ways because the term hardness can mean anything from resistance to shape change to resistance to scratching. As best understood, the superlattice structure of Sastri in view of Wong et al. results in a layered structure having a hardness of approximately four times that of chromium.

With respect to claims 10 and 11, the modified apparatus of Sastri discloses the coating having a resistance to wear which exceeds a resistance to wear provided by a coating of diamond-like carbon. Examiner notes that one measure of "a resistance to wear" is hardness itself. Since the coating disclosed by Sastri in view of Wong et al. is indeed harder than an example of a DLC, it has a higher resistance to wear. Likewise, a blade which doesn't wear as quickly as another also has a longer lifetime of use.

With regards to claims 1 and 19, Sastri fails to disclose the layer of Cr is ion implanted into the metal substrate.

Klementich teaches it is old and well known in the art of metal substrates to ion implant a layer of Cr (column 32 lines 62-67). Also, the website provided by Applicant discloses ion implanting is an old and well known method of making metals tools tougher. In light of Klementich and the provided website it would have been well within one's technical grasp to have joined the first layer of Cr to the blade via ion implantation to make the blade tougher. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri with ion implanting the first layer of Cr to the blade, as taught by Klementich, because the substitution of one known element for another would have yielded predictable results and all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Klementich as applied to claim 1 above, and further in view of Sanderson (3,838,512).

Sastri in view of Wong et al. and Klementich does not disclose a layer of Cr and a layer of CrN between the substrate and the layered pairs. Sanderson discloses a razor blade having a first layer of chromium to provided added strength and a second layer of a chromium based nitride which acts as better substrate for adhesion to following layers (column 7 lines 13-24). It would have been obvious to a person of

ordinary skill in the art at the time the invention was made to provide a layer of chromium followed by a layer of chromium nitride before the stacked pairs of Sastri in view of Wong et al. and Klementich based on the teachings of Sanderson in order to provide a stronger razor that is a better substrate for adhesion of a following layer.

6. Claims 8, 12-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Klementich as applied to claims 1-3, 6, 7, and 9-11 above, and further in view of Grewal et al. (5,142,785)

Sastri in view of Wong et al. and Klementich (as applied to claim 1 above) does not disclose the blade being mounted in any sort of tool for shaving hair as is claimed in claim 8. Examiner notes that hand held razors are very common and well known in the art. The use of coated blades in the heads of these razors is also very well known in the art. Grewal et al. discloses mounting a coated razor blade in a shaver head (as shown in figure 1). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri in view of Wong et al. and Klementich with mounting a coated blade in a head, as taught by Grewal et al., because all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

With regards to claim 8, Sastri fails to disclose the layer of Cr is ion implanted into the metal substrate.

Klementich teaches it is old and well known in the art of metal substrates to ion implant a layer of Cr (column 32 lines 62-67). Also, the website provided by Applicant

discloses ion implanting is an old and well known method of making metals tools tougher. In light of Klementich and the provided website it would have been well within one's technical grasp to have joined the first layer of Cr to the blade via ion implantation to make the blade tougher. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Sastri with ion implanting the first layer of Cr to the blade, as taught by Klementich, because the substitution of one known element for another would have yielded predictable results and all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective function and the combination would have yielded predictable results.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sastri in view of Wong et al. and Klementich and further in view of Grewal et al. as applied to claims 8 above, and further in view of Sanderson.

The modified apparatus of Sastri does not disclose a layer of Cr and a layer of CrN between the substrate and the layered pairs. Sanderson discloses a razor blade having a first layer of chromium to provided added strength and a second layer of a chromium based nitride which acts as better substrate for adhesion to following layers (column 7 lines 13-24). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a layer of chromium followed by a layer of chromium nitride before the stacked pairs of the modified blade of Sastri based on the teachings of Sanderson in order to provide a stronger razor that is a better substrate for adhesion of a following layer.

Response to Arguments

8. Applicant's arguments with respect to claims 1-3, 5-14, and 16-19 have been considered but are moot in view of the new ground(s) of rejection. It is noted the PTO form 892 lists WO 9300204 as a reference even though it is listed on the I.D.S. considered 12-18-07 by the previous examiner. After a review of the case, the copy of this reference was not found and the examiner has cited it to remedy any issues this might bring up later on.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Daniel Prone whose telephone number is (571)272-4513. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on (571)272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

01 February 2010

/Jason Daniel Prone/

Primary Examiner, Art Unit 3724